

In the Claims:

1-36. (Canceled)

37. (Currently Amended) A nucleotide analogue which comprises:

- (a) a base which is selected from the group consisting of an adenine, or an analogue of adenine, a cytosine, or an analogue of cytosine, a guanine, or an analogue of guanine; a thymine, or an analogue of thymine, and a uracil, or an analogue of uracil;
- (b) a unique label attached through a cleavable linker to the base or to ~~an~~ the analogue of the base;
- (c) a deoxyribose; and
- (d) ~~a cleavable chemical group to cap an OH group at a -OR group at a 3'-position of the deoxyribose, wherein R is -~~
CH₂OCH₃ or -CH₂CH=CH₂; and
- (e) a triphosphate group.

38. (Cancelled).

39. (Original) The nucleotide analogue of claim 37, wherein the unique label is a fluorescent moiety or a fluorescent semiconductor crystal.

40. (Currently Amended) The nucleotide analogue of claim 39, wherein the fluorescent moiety is ~~selected from the group consisting of~~
5-carboxyfluorescein, 6-carboxyrhodamine-6G, N,N,N',N'-tetramethyl-6-carboxyrhodamine, or ~~and~~ 6-carboxy-X-rhodamine.

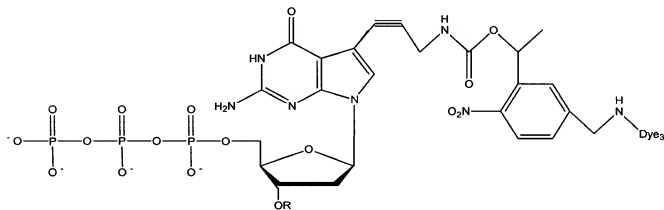
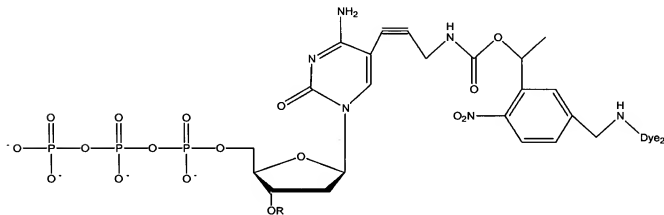
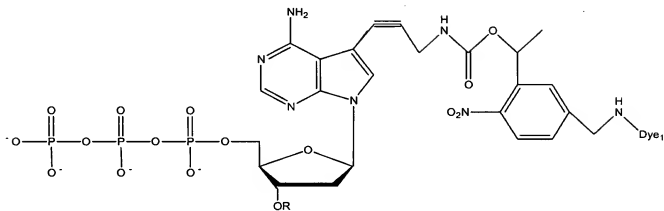
41. (Withdrawn) The nucleotide analogue of claim 37, wherein the unique label is a fluorescence energy transfer tag which comprises an energy transfer donor and an energy transfer acceptor.

42. (Withdrawn) The nucleotide analogue of claim 41, wherein the

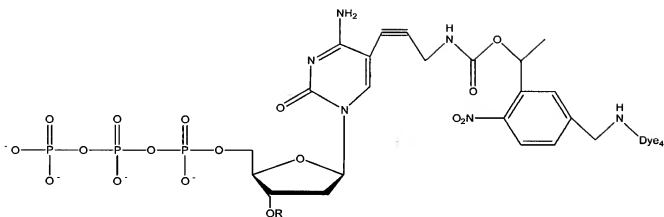
energy transfer donor is 5-carboxyfluorescein or cyanine, and wherein the energy transfer acceptor is selected from the group consisting of dichlorocarboxyfluorescein, dichloro-6-carboxyrhodamine-6G, dichloro-N,N',N'-tetramethyl-6-carboxyrhodamine, and dichloro-6-carboxy-X-rhodamine.

43. (Withdrawn) The nucleotide analogue of claim 37, wherein the unique label is a mass tag that can be detected and differentiated by a mass spectrometer.
44. (Withdrawn - Currently Amended) The nucleotide analogue of claim 43, wherein the mass tag is ~~selected from the group consisting of~~ a 2-nitro- α -methyl-benzyl group, a 2-nitro- α -methyl-3-fluorobenzyl group, a 2-nitro- α -methyl-3,4-difluorobenzyl group, ~~and~~ or a 2-nitro- α -methyl-3,4-dimethoxybenzyl group.
45. (Original) The nucleotide analogue of claim 37, wherein the unique label is attached through a cleavable linker to a 5-position of cytosine or thymine or to a 7-position of deaza-adenine or deaza-guanine.
46. (Currently Amended) The nucleotide analogue of claim 37, wherein the cleavable linker between the unique label and the nucleotide analogue is cleavable by ~~a means selected from the group consisting of~~ one or more of a physical means, a chemical means, a physical chemical means, heat, ~~and~~ or light.
47. (Original) The nucleotide analogue of claim 46, wherein the cleavable linker is a photocleavable linker which comprises a 2-nitrobenzyl moiety.
48. (Cancelled).
49. (Currently Amended) The nucleotide analogue of claim 37, wherein the nucleotide analogue ~~is selected from the group consisting of~~

has the structure:



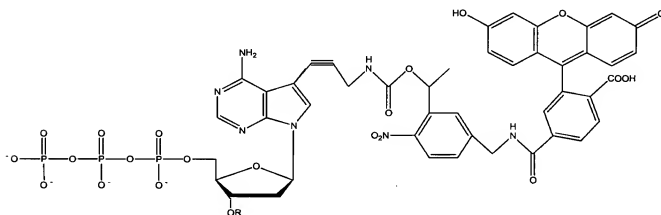
and
or

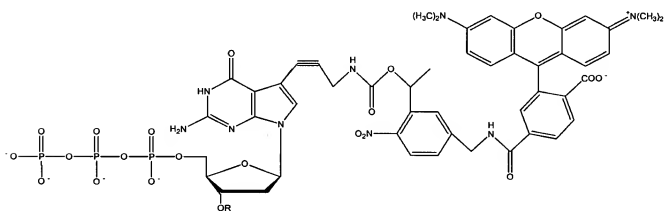
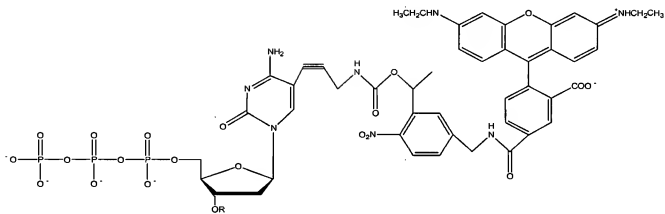


[[3]]

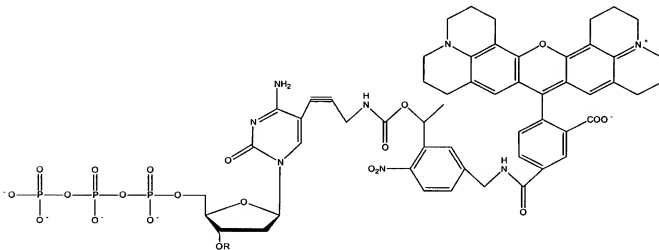
wherein Dye1, Dye2, Dye3, and Dye4 are four different dye labels; and wherein R is -CH₂OCH₃ or -CH₂CH=CH₂ ~~a cleavable chemical group used to cap the OH group at the 3' position of the deoxyribose.~~

50. (Currently Amended) The nucleotide analogue of claim 49, wherein the nucleotide analogue has the structure ~~is selected from the group consisting of:~~



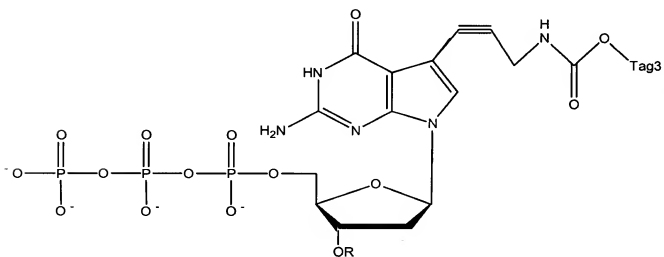
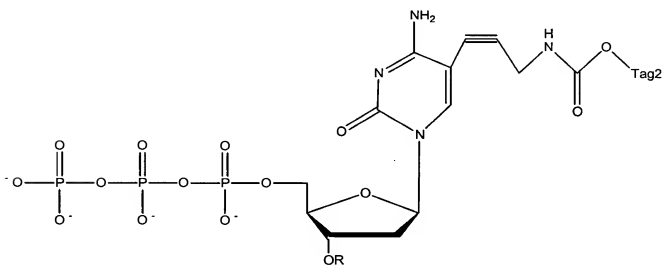
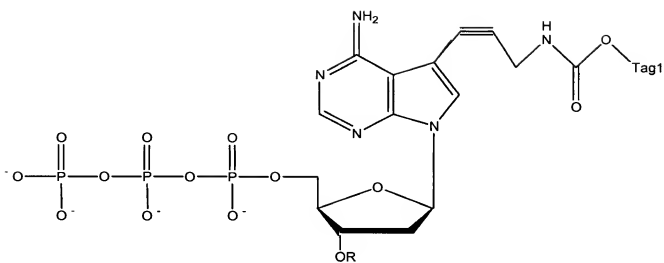


~~and~~
or


$$[[;]]_2$$

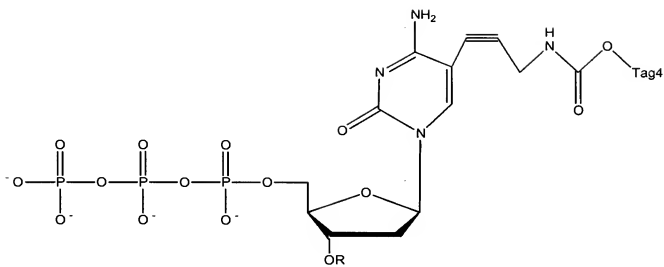
wherein R is $-\text{CH}_2\text{OCH}_3$ or $-\text{CH}_2\text{CH}=\text{CH}_2$.

51. (Withdrawn - Currently Amended) The nucleotide analogue of claim 37, wherein the nucleotide analogue ~~is selected from the group consisting of~~ has the structure:



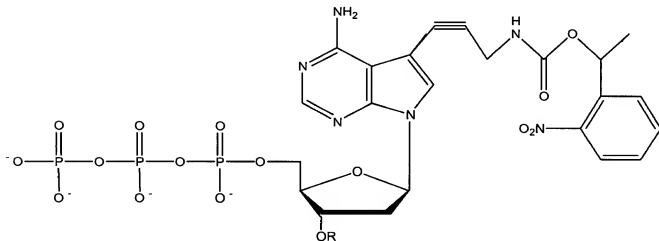
and

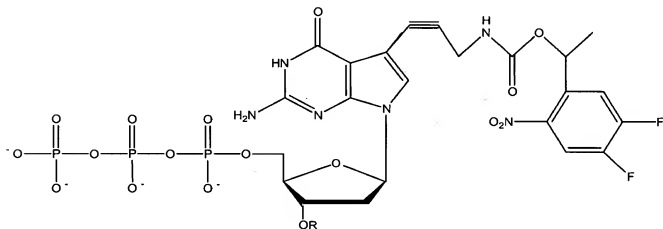
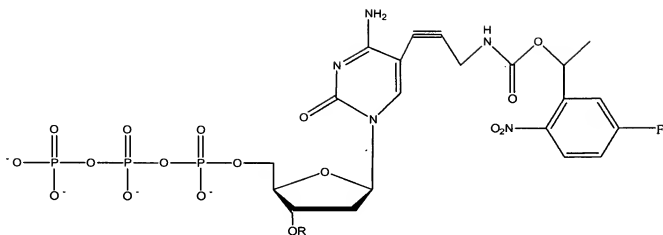
or



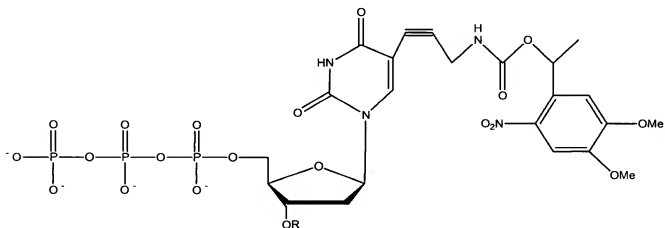
wherein Tag1, Tag2, Tag3, and Tag4 are four different mass tag labels; and wherein R is -CH₂OCH₃ or -CH₂CH=CH₂ ~~a cleavable chemical group used to cap the OH group at the 3' position of the deoxyribose.~~

52. (Withdrawn - Currently Amended) The nucleotide analogue of claim 51, wherein the nucleotide analogue ~~is selected from the group consisting of~~ has the structure:





and or



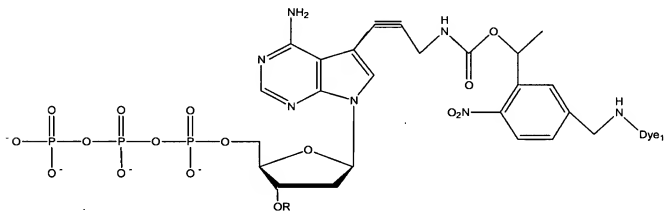
wherein R is $-\text{CH}_2\text{OCH}_3$ or $-\text{CH}_2\text{CH}=\text{CH}_2$.

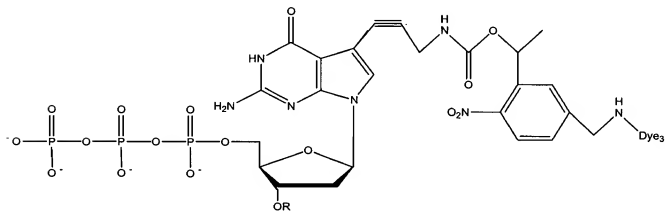
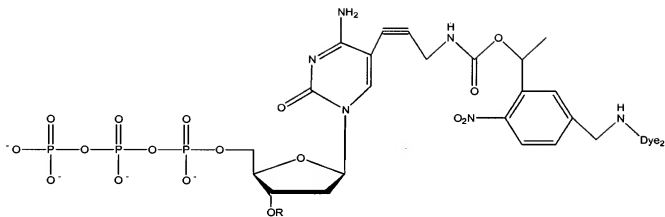
53-60. (Cancelled)

61. (New) A nucleotide analogue which comprises:

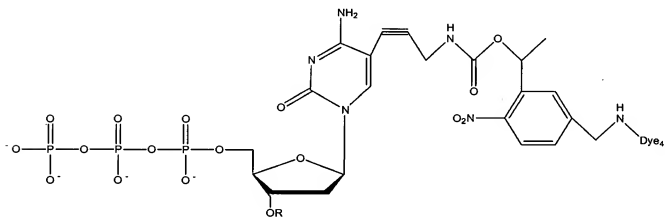
- (a) a base which is an adenine, an analogue of adenine, a cytosine, an analogue of cytosine, a guanine, an analogue of guanine, a thymine, an analogue of thymine, a uracil, or analogue of uracil;
- (b) a unique label attached through a cleavable linker to the base or to the analogue of the base;
- (c) a deoxyribose;
- (d) a $-\text{OR}$ group at a 3'-position of the deoxyribose, wherein R is a cleavable chemical group; and
- (e) a triphosphate group,

wherein the nucleotide analogue has the structure:





or



wherein Dye₁, Dye₂, Dye₃, and Dye₄ are four different dye labels.

62. (New) The nucleotide analogue of claim 61, wherein the cleavable chemical group is cleavable by one or more of a

physical means, a chemical means, a physical chemical means, heat, or light.

63. (New) The nucleotide analogue of claim 61, wherein the dye is 5-carboxyfluorescein, 6-carboxyrhodamine-6G, N,N,N',N'-tetramethyl-6-carboxyrhodamine, or 6-carboxy-X-rhodamine.
64. (New) The nucleotide analogue of claim 61, wherein R is -CH₂OCH₃ or -CH₂CH=CH₂.